Breakout for Priority Action Plan 3 Common Price Communication (updated)

Session Chair: David Holmberg

Leader: Grant Gilchrist

Moderator: Toby Considine

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Agenda

- Call to Order
- Project Status
- Detailed Status Updates
- Discussion

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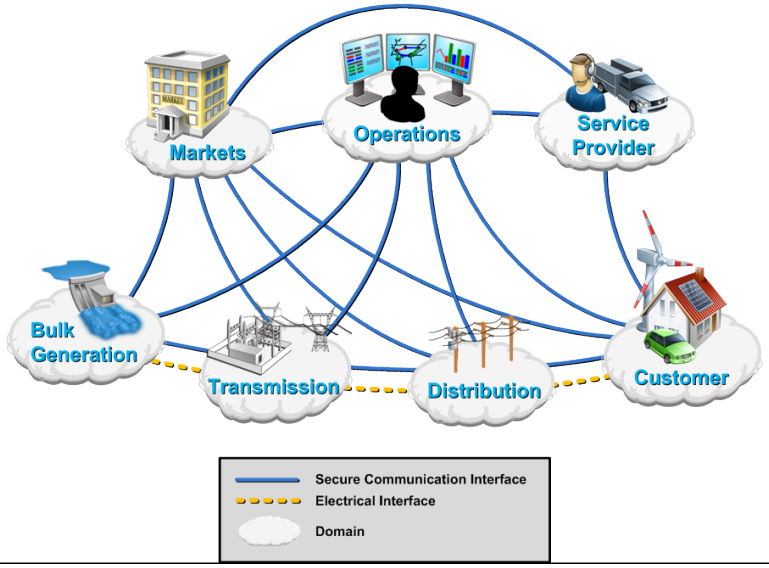
Conceptual Model

- Price crosses most domains



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PAP 3 Tasks Identified

Task	Responsible	Date	Notes
Convene Cross-Domain Group Price+	OASIS, NAESB	2009-10/11	DEWGs, FIX, others
--High level concept of operation	BAE	2009-11	DEWGs, Ron Melton
--Survey existing price communication	FIX & NAESB	2009-10	FIX, JPM, FISD, NARUC/NAESB, ISO/RTO CTO?, EEI, AHAM, ZigBee, OpenHAN, OASIS
--Data model	OASIS/IEC TC57 CIM WG	ongoing	eMIX; FIX; IEC/CIM coord (Saxton)
--Draft pricing specification (to multiple locs) Review by IEC, FIX, CalConnect, NAESB, FIATECH, NIBS, DEWGs, others	OASIS EMIX TC	2010-04	data model, XML expression?, No Magic
Continued coordination		ongoing	
Attributes	Defer/conveners		
SHARE EVERYTHING AT GRID-INTEROP			

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Participation & Details on PAP03

- From the PAP03 page
  - http://collaborate.nist.gov/twiki-sggrid/bin/view/SmartGrid/PAP03PriceProduct
  - Updated as needed; last revision date shown on page
- Participation in PAP03
  - http://collaborate.nist.gov/twiki-sggrid/bin/view/SmartGrid/PAP03PriceProduct#JoinList for info
  - Or send email to priceaction@nist.gov
  - Or sign up at one of the meetings

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Efforts Related to PAP03

- NAESB Smart Grid Task Force
  - http://www.naesb.org/smart_grid_standards_strategies_development.asp
  - For notices: http://www.naesb.org/listserv/mail/listmanager.asp
  - Review of requirements ends ***2009-11-30***
    - http://www.naesb.org/pdf4/smart_grid_ssd111709reqcom.doc
- OASIS Energy Market Information TC
  - http://www.oasis-open.org/committees/emix
  - Questions on participation in the TC or OASIS: William Cox or Toby Considine
  - General list (charter links posted; email Cox or Considine for info): smartgrid-interest@oasis-open.org

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Status Updates

- NAESB Requirements and Use Cases
  - Robert Burke and Jim Northey
- ZigBee Smart Energy Profile 2 Update
  - Robby Simpson
- OASIS EMIX Technical Committee Update
  - Ed Cazalet

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NAESB Smart Grid Task Force PAP 03 Update

Robert B. Burke – NAESB Task Force Co-Chair
Jim Northey

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PAP 03 Description

- Develop Common Specification for Price and Product Communication
- A common price model will define how to exchange energy characteristics, availability, and schedules to support free and effective exchange of information in any market.
- In financial markets, this type of description is called product definition.
- Although today's energy markets are almost exclusively wholesale, the product definition will be usable in other scenarios including retail markets and "prices to devices" scenarios.
- The completed price model will be used in Demand Response (DR) communications, in usage sharing between the meter and the premises Energy Service Interface, and in potential market operations

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PAP 03 Objectives

- Price is more than a number.
- Price is a number associated with product characteristics.
  - Identified product characteristics include delivery schedule, quality, environmental characteristics, and regulatory characteristics.
  - A common specification for price is a precursor to new market developments, to demand response, to distributed energy resources, to understanding meter information, and to every other hand-off between domains.
- Develop a summary of product characteristics of interest to energy consumers.
- Develop summary of power reliability and quality characteristics that affect price and availability (supply side) and desirability (demand side).
- Develop and implement a plan to expedite harmonized standards development and adoption within the associated standards bodies.

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NAESB SGTF Interaction

- Per agreement reached during the NIST hosted meeting in early Oct. 2009 in DC. NAESB SGTF has the lead on the following responsibilities for PAP09
- Paper inventories use cases that impact price characteristics.
- Use cases will be used to identify a common set of price attributes that can identify electricity as a product.
- Initial inventory of attributes is provided but is non-normative and requires further analysis by PAP-03 participants.

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Areas Defined

- Actors and descriptions
- 7 use cases, actors, and typical scenarios
- Price Identification Attributes
  - 9 attributes, descriptions, and considerations
- Product Attributes
  - 4 attributes, descriptions, and considerations
- Consumer Attributes
  - 9 attributes, descriptions, and considerations

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PAP 03 Actors

ACTORS	DESCRIPTION
Electricity Consumer	Any entity that consumes electricity. This term includes commercial customer, industrial customer and residential customer.
Retail Market	The set of Retail Service Providers and others who support retail transactions.
Wholesale Market	Clears wholesale bids and offers and schedules among Bulk Generators and Retail Service Providers. Schedules wholesale transactions for delivery over the transmission Grid. Wholesale market participants include ISOs, RTOs, exchanges, brokers, marketers, generators, transmission operators and Retail Service Providers.
Transmission Operations	Controls transmission of energy.
Supplier	A business entity that provides electric supply to the end users.
Utility Distribution Company (UDC) *(Distributed Operations)*	Controls the distribution of electricity to and from customers and to and from the transmission grid.
Distribution Operator	The operation center of a distribution company which is responsible for the reliable delivery of electricity to end users.
Demand Response Provider(DRP)	A role which carries the responsibilities of coordinating demand response to deliver demand response services.
Distributed Energy Resource (DER)	Small, modular, energy generation and storage technologies that provide electric capacity or energy where it is needed.

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PAP 03 Actors (continued)

ACTORS	DESCRIPTION
Dynamic Price (DP) Service Provider	A Dynamic Price Service Provider may provide dynamic price services to Retail Service Providers. They may also serve as a DP Administrator supporting Registration Processes and Registration Data Base.
Device, HAN Device, Electric Vehicle, or Smart Appliance	Devices that can react to remote management, whether to price, grid integrity, or other energy management signaling. May be controlled by a Facility Energy Management System (EMS), a Facility Gateway, though a Smart Meter (serving as a Facility Gateway), or other means such as direct communication of price or other information. Communication to the device might be via a Home-Area Network or other means; we use the terms interchangeably.
Meter	Unless otherwise qualified, a device used in measuring watts, vars, var-hours, volt-amperes, or volt-ampere-hours. Called a Smart Meter when part of an Advanced Metering Infrastructure (AMI).
Facility EMS, *Energy Services Interface (ESI) / Gateway*	A logical or physical device typically located at the customer facility and used as a communication gateway. The EMS may or may provide the Gateway function. The Energy Services Interface (ESI) permits applications such as remote load control, monitoring and control of distributed generation, in-home display of customer usage, reading of non-energy meters, and integration with building management systems. The ESI may provide auditing/logging functions that record transactions to and from Home Area Networking Devices.
Display	An In-Home Display (for Homes) or facilities console for other customers (e.g. commercial buildings, industrial facilities, or vehicles) shows information related to energy management.

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Z+H Smart Energy Profile Update: Priority Action Plan 3 Breakout (Common Price Communication)

Robby Simpson, PhD

GE Energy

Smart Energy Working Group Chair

ZigBee Control your world

HOMEPLUG POWERLINE ALLIANCE

Smart Energy Overview

- TRD activities and specification developments going on in parallel
- TRD running slightly behind schedule, but are aiming to finish by end of month
- Interoperability testing to begin in January (though not to application layer)
- RESTful approach to application data transfer (still debating exact protocol)
- EXI for message format

Outreach

Working with many, many others including:

- IEC TC57
- IEC TC13
- IETF (6LoWPAN, 6lowapp, etc.)
- SAE
- IEEE

Price Communication Updates

- SE 2.0 is IEC CIM/61968 based
- Detailed comparison of IEC CIM/61968 price communications and SE 1.0 price communications complete
  - Extremely similar
  - Work is beginning to be fed back into IEC TC57 WG14
- Ongoing enhancements / harmonization with SE 1.x and 2.0:
  - Block tariffs
  - Prepayment functionality (IEC TC13 in addition to IEC TC57)
  - Digital signatures
  - Application-layer acknowledgements

Conclusions

- Participating in and monitoring ongoing requirements developments:
  - OpenHAN 2.0
  - NAESB
  - Many, many others internationally
- Working closely and diligently with SDO stakeholder
- Believe price communication to be one of the least difficult aspects for SE effort (famous last words … ;-)

Priority Action Plan 3
Common Price Communication
OASIS EMIX Technical Committee

Status Report

Grid-Interop, Nov. 18, 2009,
Ed Cazalet (Co-Chair)

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Energy Market Information Exchange

- Define information models for exchanging prices and product definitions in energy markets.
- Progress:
  - OASIS EMIX TC Charter Published
  - Call for Participation
  - OASIS TC Formed : Oct 15, 2009
  - 4 weekly meetings to date focused on developing the working group and scoping of price and product definitions
  - Anticipating requirements from NAESB

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Energy Market Information Exchange

- Develop plan and identify funding for interoperability and conformance testing (2009-11)
- Define EMIX price and product (2010-02)
- Integrate EMIX with Common Schedule (2010-03)
- Define profiles for use of EMIX in Energy Interoperation TC (2010-04)
- Define profiles for use of EMIX in FIXML (2010-11)
- Continued maintenance and development of profiles

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Discussion Points

- Cross connections
  - Target SDOs, other groups, PAP04, PAP07, PAP09, PAP10, PAP11
- Improvements
- Adjustments Summary
- Next Steps

- Discussion
- Q&A

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